

100
Shells

AMSCO EDUCATION SERVICES

IPS FOR IMPROVING YOUR STERILIZING TECHNIQUES

STEAM STERILIZERS

Prepared by the
Education Division and Research Department of
AMSCO/American Sterilizer Company
Erie, Pennsylvania

offer Patient Care Through Education



LINENS

1. DAMP

Probable Causes	Corrections
<ul style="list-style-type: none"> • Clogged chamber drain strainer. • Clogged chamber drain line. • Excessively large or dense packs. • Placing warm sterilized packs on cold surfaces. • Sterilized goods removed from sterilizer too soon following completion of cycle. • Improper loading. • Combining utensils and linens in a pack. • Placing utensils and other hard goods on top shelves of loading car, with linen packs on lower shelves. 	<ul style="list-style-type: none"> • Remove strainer, free openings of lint, sediment, etc. • Clean chamber drain line. Mix 2 tbsp. trisodium phosphate with one quart of hot water, pour into chamber drain line. Then flush drain with one quart of hot tap water. • Reduce pack to 12" x 12" x 20" or less, and 12 pounds or less. • Allow packs to cool on loading car or surfaces covered with several layers of muslin. • Allow goods to remain in sterilizer an additional 15 minutes with door slightly open. • Place packs (linens, gloves, etc.) on edge, arrange supplies to present the least possible resistance to passage of steam and air through layers of load. • Wrap linens separately. • Load hard goods below fabrics.

2. WET (Increase in weight of 5% or more).

Probable Causes	Corrections
<ul style="list-style-type: none"> • Clogged chamber drain line. • Pools of water on floor of chamber. • Wet steam. 	<ul style="list-style-type: none"> • Clean drain line — See 1 above. • Bottom of sterilizer must slope toward chamber drain opening so condensate can drain. • Contact hospital maintenance.

3. STAINED

Probable Causes	Corrections
<ul style="list-style-type: none"> • Dirty chamber. • Dirty loading car. • Chemical reaction between residual laundry compounds in linens and steam. • Boiler compound carry-over in steam supply. 	<ul style="list-style-type: none"> • Clean (cool) chamber daily with Calgonite® solution. Never use strong abrasives, steel wool, etc. (Calgon Corp.) • Clean loading car with Calgonite® solution. • Change laundry compounds. Have laundry rinse linens more thoroughly. • Notify hospital maintenance.

4. TORN WRAPPERS

Probable Cause	Correction
• Rough edges on loading car.	• Remove rough surfaces or sharp edges.

INSTRUMENTS

1. CORRODED

Probable Causes	Corrections
<ul style="list-style-type: none"> • Poor cleaning; residual soil. • Moisture. • Exposure to harsh chemicals: acids, iodine, sodium, chloride, detergents, etc. • Interior instruments. • Metallic deposition resulting from galvanic reaction with sterilizer components. 	<ul style="list-style-type: none"> • Improve cleaning. Do not allow soil to dry on instruments. • Check sterilizer for drying efficiency. Store in a dry area. • Do not expose instruments to these chemicals. If exposure occurs, rinse thoroughly after contact. • Use only top-quality instruments. • Keep sterilizer chamber and trays clean. Use detergent recommended by manufacturer — see page 2.

SPOTTED AND/OR STAINED

Probable Causes	Corrections
Mineral deposits on instruments.	Wash with soft water and detergent with good wetting properties.
Laundry compound from instrument wrappers.	Check laundry procedures.
Residual detergent from cleaning solutions.	Rinse instruments thoroughly.
Mineral deposits from tap water rinse.	Use distilled water for final rinse.
Deposits or stains from strong dyes or chemicals.	Remove with a warm, weak solution (10%) of nitric acid or a mild abrasive. Rinse instruments thoroughly.

1. STIFF HINGES OR JOINTS

Probable Causes	Corrections
Corrosion or soil in joint.	Clean joint with a warm, weak solution (10%) of nitric acid or a lapping compound (Grt 180-Clover Mfg. Co., Norwalk, Conn.). Rinse instruments thoroughly.
Jaws or shanks out of alignment.	Realignment by qualified instrument repairman.

UTENSILS

1. WET WRAPPERS ON METALLIC UTENSILS

Probable Causes	Corrections
• Improper loading.	Position load so water does not collect in utensils.
• Improper positioning inside wrapper.	Separate utensils (with acceptable dividers) and position them so that the bottoms are parallel.

Probable Cause	Correction
2. WET (UNWRAPPED) UTENSILS	
• Improper loading.	Position utensils so that water cannot collect.

3. MISSHAPEN HEAT-RESISTANT PLASTIC UTENSILS

Probable Cause	Correction
• Loaded too tightly.	Load loosely; do not place heavy objects against them.

4. BROKEN SUCTION BOTTLES

Probable Causes	Corrections
• Inrush of cool air when sterilizer door is opened.	Wrap before placing in sterilizer.
• Soft glass.	Use heat-resistant glass bottles.
• Chipped or defective bottles.	Inspect bottles for defects before sterilizing.

SYRINGES

1. STICKY

Probable Causes	Corrections
• Residual detergent or soil.	Clean and rinse thoroughly, distilled water for final rinse.
• Sterilized while assembled.	Separate barrels and plungers.

2. WET WRAPPERS

Probable Cause	Correction
• Overloaded baskets or racks.	Load loosely.

3. EXCESSIVE BREAKAGE

Probable Causes	Corrections
• Rough handling.	Handle carefully.
• Sterilized while assembled.	Separate barrels and plungers.
• Poor-quality syringes.	Use good-quality syringes.
• Steam-erodes glass.	Sterilize by dry heat.

GLOVES

1. TACKY OR STICKY

Probable Causes	Corrections
• Residual detergent.	Rinse thoroughly; reduce quantity of detergent in wash cycle.
• Excessive exposure to high temperature.	Do not exceed 180°F during drying process. Remove from dryer as soon as gloves are dry.
• Sterilizing gloves with other goods.	Use 20-minute sterilizing exposure at 250°F; remove from sterilizer on completion of cycle.
• Poor powdering.	Sterilize gloves separately.
	Follow manufacturer's instructions to insure film of powder on all surfaces.

2. EXCESSIVE TEARING OR RUPTURING

Probable Causes	Corrections
• Gloves used too soon following sterilization.	Don't use gloves until 24 hours after sterilization.
• Water or air testing too soon after washing and drying.	Air test (only) not less than 8 hours following drying.

CATHETERS, TUBES, AND TUBING

1. BRITTLE

Probable Causes	Corrections
• Overexposure to heat in sterilizer or in storage.	Use 30-minute sterilizing exposure at 250°F; remove from sterilizer on completion of cycle; store in cool area.
• Dry catheter or tubing.	Flush with distilled water just prior to sterilization.
• Prolonged storage before placing in circulation.	Improve inventory control.
• Repeated sterilization without proper cleaning.	Reprocess before sterilizing.

2. STICKY

Probable Cause	Correction
<ul style="list-style-type: none"> • Prolonged exposure to chemicals, grease, oils, etc. 	Avoid overexposure.

SOLUTIONS

1. CAPS "BLOW OFF"

Probable Causes	Corrections
<ul style="list-style-type: none"> • Exhausting sterilizer too rapidly. • Maladjusted slow exhaust valve. 	<ul style="list-style-type: none"> Use slow exhaust cycle. Notify manufacturer.

2. LOSS OF MORE THAN 5% OF FLUID VOLUME DURING STERILIZATION

Probable Causes	Corrections
<ul style="list-style-type: none"> • Exhausting sterilizer too rapidly. • Maladjusted slow exhaust valve. • Excessive sterilizing temperature. 	<ul style="list-style-type: none"> Use slow exhaust cycle. Notify manufacturer. Sterilize at 250-254°F.

3. CRACKED FLASKS

Probable Causes	Corrections
<ul style="list-style-type: none"> • Cracked before sterilization; poor inspection following cleaning. • Containers not heat-resistant or with screw-caps. 	<ul style="list-style-type: none"> Inspect thoroughly after cleaning; discard chipped or cracked flasks. Use only borosilicate (Type I) containers and automatic sealing and venting closures.

4. NO VACUUM

Probable Causes	Corrections
<ul style="list-style-type: none"> • Worn or damaged caps and/or collars. • Applying cap and collar to flask separately. • Maladjusted slow exhaust valve. 	<ul style="list-style-type: none"> Inspect closures thoroughly following cleaning; discard those damaged. Assemble caps and collars prior to placing on flasks. Notify manufacturer.

5. DISCOLORATION

Probable Causes	Corrections
<ul style="list-style-type: none"> • Prolonged exposure period. • Impure ingredients or dirty flasks. • Excessive temperature. 	<ul style="list-style-type: none"> Exposure should be according to size of flasks; do not combine flasks requiring different exposure periods in same load. Check purity of ingredients and clean flasks thoroughly. Sterilize only at 250-254°F.

6. SOLUTIONS BOILING WHEN DOOR IS OPENED

Probable Causes	Corrections
<ul style="list-style-type: none"> • Door opened too quickly. • Maladjusted slow exhaust valve. 	<ul style="list-style-type: none"> Do not open door until temperature gauge is below 212°F and pressure gauge is at "0". Do not touch or move a load of boiling solutions. Notify manufacturer.

7. BLACK PARTICLES OR "SNOWSTORM"

Probable Causes	Corrections
<ul style="list-style-type: none"> • Deteriorated caps and/or collars. • Clumping of chemicals. • Use of "soft glass" containers. 	<p>BLACK "SNOWSTORM"</p> <ul style="list-style-type: none"> Replace caps and/or collars. Use only chemically pure ingredients. Use only borosilicate (Type I) containers.

SPODI (BACTERIAL SPORE STRIPS)

1. VIABILITY CONTROL STRIP SHOWS NO GROWTH

Probable Causes	Corrections
<ul style="list-style-type: none"> Excessively low or high incubation temperature. Not using correct medium. Sterilized all 3 strips. 	<ul style="list-style-type: none"> Incubate at 55°C for <i>B. stearothermophilus</i>, 37°C for <i>B. subtilis</i> (globigii). Use Trypticase Soy Broth B.B.L. No. 01-162. Do not sterilize control strip.

2. GROWTH IS FOUND IN BOTH VIABILITY AND TEST STRIPS

Probable Causes	Corrections
<ul style="list-style-type: none"> Load may be too large, too dense, or improperly loaded in chamber. Sterilizer may be malfunctioning. Media may not have been sterile when used. Contaminated during transfer to media. 	<ul style="list-style-type: none"> Size of packs should not exceed 12" x 12" x 20"; weight should not exceed 12 pounds. Packs should rest on edge; all supplies arranged to present the least possible resistance to passage of steam and air through layers of load. Notify manufacturer. Run negative control tubes to disprove this possibility. Use only aseptic technique in laboratory.

3. GROWTH IS FOUND IN ONE TEST STRIP BUT NOT THE OTHER

Probable Causes	Corrections
<ul style="list-style-type: none"> Contamination of one strip during transfer to media. Too short an exposure period. Sterilizer may be malfunctioning. 	<ul style="list-style-type: none"> Use only aseptic technique in laboratory. Use correct exposure period for type of load. Notify manufacturer.

MECHANICAL

1. STICKY GASKETS

Probable Causes	Corrections
<ul style="list-style-type: none"> Old gasket. Door closed when not in use; steam in jacket. Dirty door frame. 	<ul style="list-style-type: none"> Replace. Leave door ajar. Clean.

2. STEAM LEAKAGE

Probable Causes	Corrections
<ul style="list-style-type: none"> Worn gasket. Door closed improperly. 	<ul style="list-style-type: none"> Replace. Close properly (if problem continues, notify hospital maintenance).

3. CATCHES SLIP ON LOADING CARRIAGE

Probable Causes	Corrections
<ul style="list-style-type: none"> Loose spring. Carriage too high. 	<ul style="list-style-type: none"> Adjust or replace. Lower carriage.

4. LOADING CAR "CREEPS" WHEN DOOR IS OPENED

Probable Cause	Correction
<ul style="list-style-type: none"> Sterilizer not level. 	<ul style="list-style-type: none"> Notify hospital maintenance.

5. CHAMBER DOOR WON'T OPEN

Probable Causes	Corrections
<ul style="list-style-type: none"> Vacuum in chamber. Door-lock clutch is jammed. Gasket sticking to door frame. 	<ul style="list-style-type: none"> Turn controls off and wait for equalization of pressure. Press door-lock clutch release and/or notify hospital maintenance. Notify hospital maintenance.